

Reconnaissance System UAV CL 289

Status and Programme Upgrade

EURO UVS Conference UAV 2002
Paris

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1 SP howitzer 2S1, destroyed

Reconnaissance System UAV CL 289

The world wide unique operational
Fast Flying (720 km/h) Tactical UAV System



Surveillance and reconnaissance
Target detection and localisation
Target classification and identification
Strike damage assessment
Peace keeping situation verification.



5090-181311Zapr99-DroBtr KVM

Main characteristics

- Pre-programmed flight path with no re-tasking provides
 - High jamming resistance
 - Deep penetration and target recognition in narrow valleys (no line of sight)
- Zeiss Eltro 3-Lens Optronic optical camera for day-time missions
- Infra-red linescan system with real-time video transmission for day and night reconnaissance
- Large area coverage
- High day and night mission frequency
- Short reaction and response times, Short turn-around times
- Very low vulnerability due to high velocity (730 km/h) and low altitude flight profiles

Status

- Development in the 1970's and 1980's as a joint German, Canadian and French programme with the national main contractors Dornier (Ge), Canadair (Ca), Aerospatiale (Fr)
- Today In service with the German and French Forces since the beginning of the 1990's.
- More than 1500 flights and operational missions
- Dornier is the responsible system company and has got the IPR (Intelligent Property Rights)

Reasons for retrofits and upgrades

- New requirements (Out of area, Combined & Joint Task Force)
- New regulations & standards
- New techniques available (Small size SAR, digital sensors, small size data storage)
- Obsolescence of components
- Cost reduction

Drone Retrofit Programme AOLOS



Especially designed for reliable reconnaissance results in a high threat environment

AOLOS: Ada Onboard Operational Software

Drone Retrofit Programme AOLOS

- Modernisation of computer-HW
- Redesign of onboard Software and transmission into Ada
- Integration of a new GPS for Peace Time Equipment and additional for navigation guidance support
- Reduction of Maintenance Costs
- Exchange of obsolete components
- Development phase completed in August 2002

Ground Segment Retrofit:

Mission Planning Facility



Datalink Ground Station



Image Exploitation Station



Ground Segment Retrofit: Mission Planning Facility

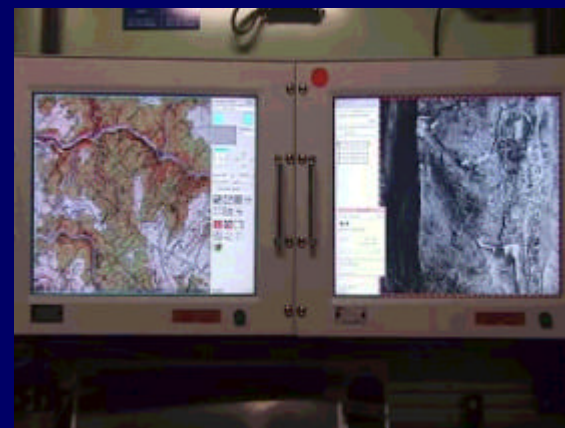


- Redesign of Core Software and transmission into C++
- Commercial Off The Shelf hardware
- Common Planning features for the French Army and German Army



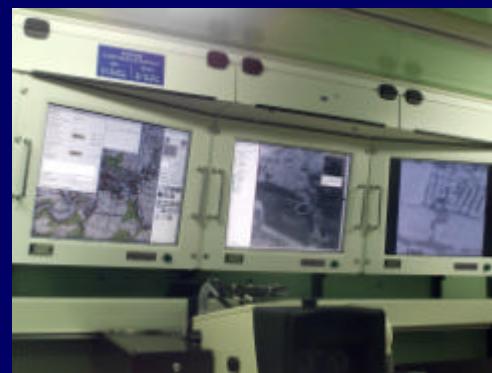
Ground Segment Retrofit: Datalink Ground Station

- New digital front end for on-line displaying of IR-screening
- 1 Gb Ethernet connection with image exploitation station for nearly on-line distribution and exploitation of IR image sequences
- Data storage in a raid-system for further exploitation



Ground Segment Retrofit: Image Exploitation Station

- Army specific configuration of the The "LBAA Bundeswehr"
(Image Exploitation System of the German Bundeswehr)
- Multi sensor digital exploitation station
- Scalable image exploitation capability
- Identification Tool RecceMan
- Reporting Tools (ADLER, RECEXREP)



System Upgrade KWS



KWS:
Kampfwertsteigerung

System Upgrade KWS

Digital Sensor Suite

- SAR-Sensor for adverse weather operations
- New IR-Sensor with improved resolution for identification
- New digital EO-Sensor
- Data storage on-board of the recce platform

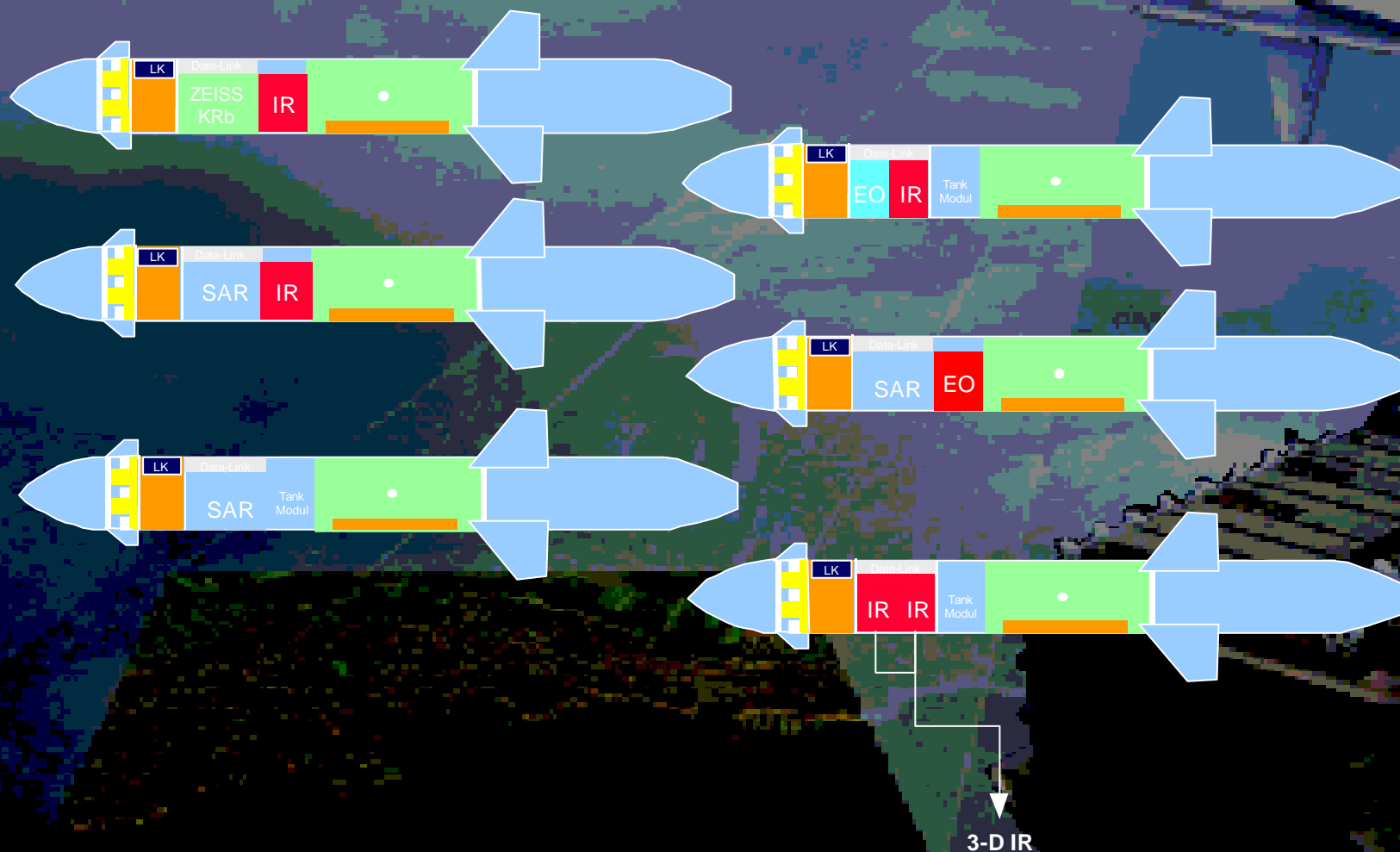
Extended Range

- Additional fuel tanks for extended flight path up to 50%

Enhanced Mobility

- Assembly, repair and system support in smaller mobile support vehicles (System transportable in C 160)
- Less vehicles (no wet film)

KWS CL 289 - Modular Payload Approach



KWS CL 289 - Technical Performance Parameters

Performance Parameter	current CL 289	K W S CL 289
recce area per flight	300 km ²	> 1200 km ²
total flight path:	400 km	< 530 km
sensor swath width:	3 km	3 km
sensor types:	V IS (Film), IR (Film)	SAR, IR, EO (all digital)
data transmission:	real time, limitation by terrain (Line-of-Sight), only IRLS	Later Realisation: real time, terrain-independent via satellite/relays
target exploitation:	manual	multi-spectral, 3D, automatic, interactive
precision of navigation:	300 m	50 m (GPS)

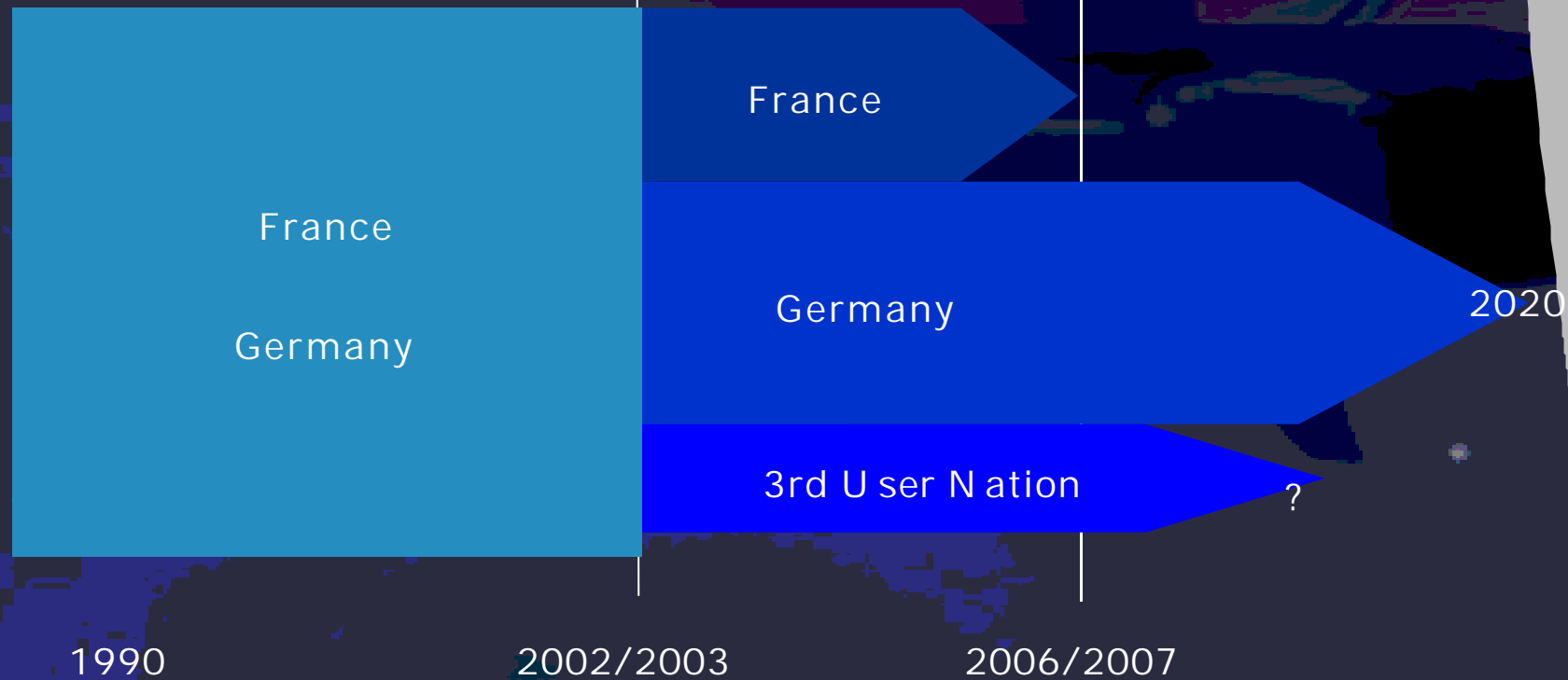
Life cycle CL 289



CL 289

CL 289 AOLOS

CL 289 KWS



Conclusion

- ⇒ The existing CL 289 system has already proven its extraordinary and unique value in the Bosnia / Kosovo battlefields
- ⇒ Some retrofits have fitted (will fit) the system with modern technology to improve the accuracy, the reliability, the image exploitation capability and to enable the ability to be integrated in C4I systems
- ⇒ The upgrade program KWS will provide the system with a full digital sensor suite, modular payload and enhanced mobility
- ⇒ Thus, the system will stay "state-of-the-art" for its customers throughout its full lifetime until after 2020
- ⇒ Other countries additional to Germany and France have stated their interest in procuring the system



Thank You !